

What is claimed is:

1. A method for making a lens molding die comprising the steps of:

(a) providing a master die having a reference surface, the reference surface being equivalent to a lens surface that is to be molded by the lens molding die;

(b) forming an SiC film on the reference surface;

(c) bonding a die base member onto the SiC film, said die base member and said SiC film constituting the lens molding die; and

(d) separating the lens molding die from the master die.

2. The method as claimed in claim 1, further comprises a step of forming a separating film on the master die between the step (a) and the step (b).

3. The method as claimed in claim 2, wherein the separating film is a carbon film.

4. The method as claimed in claim 3, wherein the carbon film is formed by PVD method.

5. The method as claimed in claim 3, further comprises a step of removing the carbon film by ashing after the step (d).

6. The method as claimed in claim 2, wherein the separating

film is a metallic film that can be etched.

7. The method as claimed in claim 1, further comprises steps of machining a surface of the die base member into a prescribed shape and machining the SiC film into a shape in conformity of the surface of the die base member between the step (b) and the step (c).

8. The method as claimed in claim 1, wherein the SiC film and the die base member are bonded to each other via a ceramic adhesive or a carbon adhesive.

9. The method as claimed in claim 1, wherein the SiC film is formed by CVD method.

10. The method as claimed in claim 1, wherein the master die is made of SiC or a hard metal including mainly WC.

11. The method as claimed in claim 1, wherein the master die is made of grassy carbon.

12. The method as claimed in claim 1, wherein the die base member is made of any one of SiC, Si₃N₄, a cermet, or a hard metal including mainly WC.

13. The method as claimed in claim 1, wherein a reference

surface of the master die is convex shape.

14. The method as claimed in claim 13, wherein a maximum peripheral inclination angle of the reference surface is 50 degrees or more.

15. The method as claimed in claim 3, further comprises a step of machining an upper surface and /or a side surface of the die base member with reference to a bottom surface of the master die between the step (c) and the step (d).

16. A method for manufacturing a plurality of lenses comprising the steps of:

(a) providing a master die having a reference surface, the reference surface being equivalent to a lens surface that is to be molded by the lens molding die;

(b) forming an SiC film on the reference surface;

(c) bonding a die base member onto the SiC film, said die base member and said SiC film constituting the lens molding die;

(d) separating the lens molding die from the master die;

(e) molding a lens material between an upper die and a lower die under pressure, at least one of the upper die and the lower die being the lens molding die,

wherein a plurality of lenses are manufactured by repeating the step (e).

17. The method as claimed in claim 16, wherein the lens

material is a glass material, and wherein the step (e) further comprises the steps of:

(1) holding the glass material between the upper die and the lower die;

(2) heating each of the glass material, the upper die and the lower die up to a prescribed temperature,
before molding the lens.

18. The method as claimed in claim 16, wherein the lens material is a fused glass material, and wherein the step (e) further comprises the step of (1) dropping or placing the fused glass material on the lower die before molding the lens.

19. The method as claimed in claim 16, wherein the lens material is a plastic material and, in the step (e), the plastic material is injected and filled under pressure into a cavity enclosed by the upper die and the lower die.

20. The method as claimed in claim 16, further comprises a step of forming a separating film on the master die between the step (a) and the step (b).